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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,224

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Tadashi Ishikawa

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EXAMINER

SAVAGE, JASON L

ART UNIT

PAPER NUMBER

1794

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,224	<b>Applicant(s)</b> ISHIKAWA ET AL.	
	<b>Examiner</b> JASON L. SAVAGE	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2008 and 12 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4,6,8,10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4,6,8,10 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20081112</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### ***Claim Objections***

Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The limitation in claim 12 has been added to all of the independent claims 4, 6, 8 and 10, as such claim 12 is not further limiting to the recited claims from which claim 12 depends.

### ***Claim Rejections - 35 USC § 103***

Claims 4, 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiyuki et al (JP 2001-073071 English Machine Translation) in view of Shigeru (JP 03-153828) or Tomomasa et al. (JP 2001-001148 English Machine Translation).

Yoshiyuki teaches thick steel plates which are welded having a small difference in the hardness between the weld material in the heat-affected zone and the base metal (abs). Yoshiyuki further teaches by controlling the hardness difference in the different material zones provides a heterogeneity in the weld zone thus reducing stress concentration and distortion in the weld zone providing the welded structure with improved stress-corrosion and crack proof resistance (par [0005]). Yoshiyuki does not recite a particular range for the hardness difference between the material zones but exemplifies multiple embodiments which had hardness differences within the claimed range between 70-110% (Table 3). Regarding the limitation that the plate thickness is

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over 50 mm, Yoshiyuki teaches that plates having a thickness of 50mm or more may be used (par[0037]).

Regarding the limitation that the joints are butt-welded joints, although Yoshiyuki does not explicitly recite the welded joints are butt-welded, the formation of conventional weld joints including butt welded joints would have been obvious to one of ordinary skill so as to form the recited components by Yoshiyuki such as construction, bridge, shipbuilding, etc (par[0001]).

Regarding the limitation that the width of the weld metal is not more than 70% of the plate thickness, Yoshiyuki is silent to the claim limitations. Shigeru teaches the in a welded joint for steel components, it is desirable that the weld zone thickness is smaller than the base metal plate thickness (abs). Tomomasa also teaches that welded joints for thick steel sheets preferably have a width of less than 45% of the sheet thickness since weld widths greater than 45% will exhibit a hardness intensity lower than the steel plate hardness intensity (par[0026]). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the welded structure of Yoshiyuki such as by following the teachings of Shigeru or Tomomasa and made the weld zone width smaller than the base metal thickness such less than 45% of the plate thickness.

Regarding claim 6, although the references do not explicitly recite the region affected by welding having a hardness which is softened to not more than 95% of the hardness of the non-heat-affected or unaffected portion of the base metal, Yoshiyuki exemplifies embodiments having a hardness difference which falls within the claimed

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range. Regarding the limitation that the width of the weld region is not less than 5 mm, the plate thickness of Yoshiyuki of 50 mm or more having a width to thickness ratio of 45% or less as described by Tomomasa would produce a width region of 22.5mm or less which meets the claim limitation.

Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiyuki et al (JP 2001-073071 English Machine Translation) in view of Shigeru (JP 03-153828) or Tomomasa et al. (JP 2001-001148 English Machine Translation).as applied to claims 4, 6 and 12 above, further in view of Hasegawa et al. (JP 2002-161329).

The prior art teaches what is set forth above however it is silent to the claim limitations in claims 8 and 10 that the prior austenite grain size in the HAZ contacting the welding fusion line is not more than 200 micrometers. Hasegawa teaches a steel structure which has superior fracture resistance characteristics of a weld wherein a grain size in a weld heat affected zone of a former austenite grain size in the HAZ is 200 micrometers or less (abs).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have insured an austenite grain size in the HAZ contacting a weld fusion line is not more than 200 micrometers in the article of Yoshiyuki as modified by Shigeru or Tomomasa since the weld structure having the recited properties are taught to be superior in fracture resistance.

### ***Response to Arguments***

Applicant's arguments with respect to claims 4, 6, 8, 10 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's submission of the translated priority documents removes Terada (JP 2003-328080) as prior art. However, the claims are rejected under newly cited art drawn to Yoshiyuki (JP 2001-073071) which was cited in the IDS filed 11-12-08.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. SAVAGE whose telephone number is (571)272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Savage/  
Examiner  
4-24-09

/JENNIFER MCNEIL/

Supervisory Patent Examiner, Art Unit 1794